COGNITIVE ABILITIES OF SENIOR SECONDARY SCHOOL STUDENTS IN RELATION TO SELF-CONTROL, FAMILY ENVIRONMENT AND ACADEMIC ACHIEVEMENT

SYNOPSIS OF THE THESIS

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CERTIFICATE

This is to certify that the thesis titled **"COGNITIVE ABILITIES OF SENIOR SECONDARY SCHOOL STUDENTS IN RELATION TO SELF-CONTROL, FAMILY ENVIRONMENT AND ACADEMIC ACHIEVEMENT"** is an original piece of work done by Seema Devi under my supervision for the degree of Doctor of Philosophy, in Abhilashi University Chail Chowk Mandi H.P. I also certify that this work has not been submitted to any other University for a Ph.D. degree.

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DECLARATION

I hereby declare that the dissertation synopsis entitled **"COGNITIVE ABILITIES OF SENIOR SECONDARY SCHOOL STUDENTS IN RELATION TO SELF-CONTROL, FAMILY ENVIRONMENT AND ACADEMIC ACHIEVEMENT"** to be submitted for the partial fulfilment of the Degree of Doctor of Philosophy is my original work and the dissertation has not formed the basis for the award of any degree, diploma, associateship or fellowship of similar other titles. It has not been submitted to any other University or Institution for the award of any degree or diploma.

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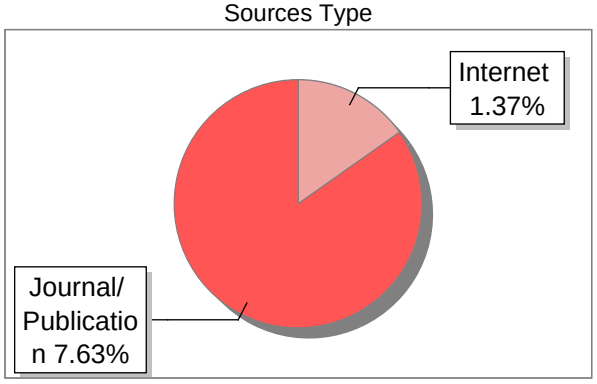

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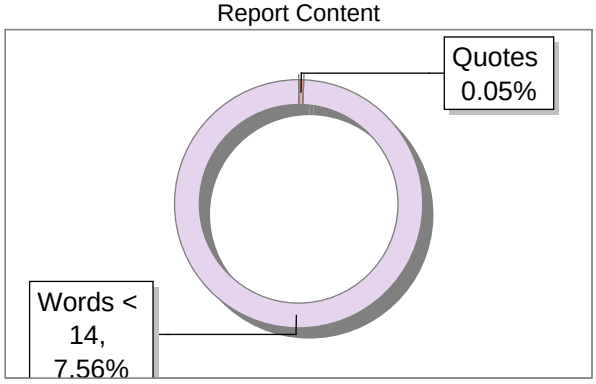

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INTRODUCTION

Developing a person's skills and ability to thrive in their cultural or societal surroundings is known as education. Its core purpose is to support the comprehensive growth of a person, including intellectual, physical, emotional, and social dimensions. Education shapes not only knowledge and skills but also values, attitudes, and behaviours, ultimately influencing how individuals perceive and engage with the surrounding environment

A well-rounded education enhances various human faculties such as perception, memory, imagination, habits, emotions, and reasoning. It works to enhance all aspects of personality physical, cognitive, affective, and psychomotor-so that individuals can contribute meaningfully to society. Among these, cognitive development holds particular importance because it underpins other areas of personal growth and is closely linked to academic achievement and lifelong learning.

COGNITIVE DEVELOPMENT

Cognitive development refers to the progression of mental processes like reasoning, memory, decision-making, and problem-solving throughout a person’s life. Jean Piaget's main theory states that children go through four stages of cognitive development:

- Sensorimotor (birth to ~2 years): Learning through sensory experiences and actions.
- Preoperational (2–7 years): Developing symbolic thought but limited logical reasoning.
- Concrete operational (7–11 years): Gaining logical thinking about concrete objects and understanding concepts like conservation.

- Formal operational (adolescence and beyond): Acquiring abstract and hypothetical reasoning skills.

During childhood and adolescence, cognitive abilities such as logical thinking, ethical reasoning, and metacognition (awareness of one’s own thought processes) become increasingly sophisticated

FACTORS INFLUENCING COGNITIVE DEVELOPMENT

Several factors shape cognitive growth:

i) **Home Environment:** Emotional, social, and academic support from family, along with effective communication and access to resources, significantly influence cognitive abilities.

ii) **Parental Involvement:** Parents act as primary educators, and their engagement can foster critical thinking and problem-solving skills in children.

iii) **Self-Control:** The capability to regulate thoughts, emotions, and actions is linked with greater academic focus, resilience, and success.

iv) **Motivation and Teaching Quality:** Effective teaching methods and motivated learners contribute to better cognitive and academic outcomes.

CULTURAL AND SOCIETAL CONTEXTS

Cognitive development is not a standalone process. it is deeply affected by cultural expectations, societal pressures, and educational systems. For example, in countries with highly competitive academic environments, such as China, students may experience significant stress due to entrance exams, highlighting the powerful influence of cultural and familial factors on cognitive and emotional growth.

In conclusion, education is a complex process that promotes overall development, with cognitive development at its centre. A person's capacity to learn, think critically, and prosper in society is influenced by an individual's biological, social, and cultural factors.

COGNITIVE ABILITIES

Cognitive ability encompasses a person’s capacity to understand information, solve problems, and adjust to unfamiliar situations. It involves core mental processes such as memory, attention, reasoning, and problem-solving-all of which are fundamental for success in academic settings. Individuals with strong cognitive skills are often able to comprehend complex concepts, remember information efficiently, and apply logical thinking, making cognitive strength a crucial element in effective learning.

Many studies highlight intimate connection between cognitive abilities and academic achievement. Students who possess well-developed cognitive abilities typically excel at critical thinking, information retention, and analytical problem-solving, which supports their academic progress. People who have less developed cognitive skills may struggle to keep up with coursework and face difficulties in understanding new material, which may affect their entire performance.

While cognitive ability is important factor in academic outcomes, it is not only the single psychological attributes such as self-regulation, moreover environmental influences like a supportive home life, also play important roles. A nurturing family environment can boost

emotional health and motivation, and self-control enables students to minimize distractions, maintain focus, and persist through challenges.

Unlike traditional academic subjects, cognitive abilities are not directly taught rather, they form the fundamental of education in all field. These abilities can diminish if not exercised but can also be strengthened at any age through consistent practice and engagement. While everyone has unique cognitive strengths, these skills are adaptable-dedicated effort and regular use can lead to improvement, which in turn facilitates the development of corresponding abilities

IMPORTANCE OF COGNITIVE ABILITY

Cognitive ability is a crucial aspect of intellectual functioning that significantly influences a person's ability to learn, adapt, and solve problems in a various everyday situation. It is not just significant for academic and career success but also contribute to the general quality of life. Core skills such as memory, logical reasoning, and quick information processing help individuals grasp complex ideas and excel in educational environments. Consequently, the ability of students to comprehend, retain, and apply new information is significantly influenced by their cognitive development. (Sternberg, 2022).

The effect of cognitive skills is not limited to education and employment. These abilities influence the way that people engage with others and manage their emotions. Those with well-developed cognitive skills are often more adept at handling disagreements, reading social signals, and communicating their thoughts effectively. Such strengths contribute to emotional intelligence, which is vital for maintaining healthy relationships and making thoughtful choices in both personal and professional settings. According to research people with greater cognitive abilities are generally stronger in the face of difficulties stress and are better prepared to deal with life's challenges (Moffitt et al., 2021).

Additionally, cognitive functioning is closely tied to health and well-being. Strong cognitive abilities increase a person's probability of establishing productive habits., such as eating well, staying active, and adopting with stress in positive ways. They also tend to make wiser decisions regarding finances, healthcare, and daily living. Some Studies have found that cognitive abilities developed early in life can predict later health outcomes and overall satisfaction, highlighting the lasting importance of cognitive development.

FACTORS INFLUENCING COGNITIVE ABILITIES

Children's cognitive development is influenced by a diverse array of factors, which can be broadly divided into internal and external categories. Both types of influences are essential in shaping the way children think, learn, and grow intellectually.

Internal Factors

Internal factors are those that come from within the child and affect how they process, understand, and remember information. These include:

1. **Genetic Inheritance:** A child's intellectual abilities are partly shaped by the inheritance of genetic traits from their parents. While genes do not solely determine intelligence, they do play a role in aspects such as reasoning, memory, and the speed of mental processing. Research involving families and twins highlights the significant impact of heredity on cognitive development.
2. **Brain Development and Neurological Health:** The brain composition and capabilities are closely tied to cognitive performance. Early brain development is particularly important for effective information processing and memory. Any disruptions, such as injuries or developmental issues affecting key brain regions, can hinder skills like attention, memory, and problem-solving.
3. **Intelligence:** Intelligence involves the capacity to learn, adapt, and make decisions. It influences various areas of a child's development, including verbal, emotional, social, and physical growth. A higher level of intelligence can help children face challenges and adjust to new situations more effectively.
4. **Metacognition and Learning Strategies:** Metacognition refers to being aware of and managing one's own thought processes. Youngsters how they learn best can use specific strategies-such as organizing information, asking questions, or summarizing material-to improve their cognitive performance.

External Factors

External factors are environmental factors that originate from outside the child, such as family, education, culture, and social circumstances. These can either enhance or hinder cognitive growth depending on their nature and consistency.

1. **Family Environment:** The home setting plays an important role in a child's mental development, especially in the early years. Supportive parenting, rich conversations,

emotional stability, and access to educational resources like books and toys all contribute positively. Conversely, a lack of support or intellectual stimulation at home can slow cognitive progress.

2. **Socioeconomic Status (SES):** The family's economic and social position greatly affects cognitive outcomes. Children from wealthy families frequently have access to better nutrition, healthcare, educational materials, and learning opportunities, all of which support brain development. In contrast, people from unprivileged backgrounds may face stress, poor living conditions, and restricted availability of high-quality education, which may hinder the development of cognition.
3. **Social Interactions and Peer Influence:** Interacting with peers helps children develop communication, cooperation, and critical thinking skills. Group activities and social learning environments encourage empathy, language development, and intellectual engagement. Positive peer relationships can boost motivation, while negative influences may distract from learning.
4. **Cultural and Language Exposure:** The different kinds of learned and valued cognitive abilities that emerged are influenced by the environment of culture. For instance, some cultures might prioritize memorization, while others focus on creativity or analytical thinking. Exposure to a language-rich environment supports vocabulary growth and reasoning skills.
5. **Learning Environment and Physical Space:** The physical setting where children learn also matters. Organized, quiet, and safe spaces help children concentrate and perform well academically. In contrast, noisy or unsafe environments can disrupt attention and hinder learning.

SELF-CONTROL

The Mahabharata, an ancient Indian epic, highlights the value of mastering one's own impulses, suggesting that true leadership requires overcoming desires such as lust, anger, greed, arrogance, and pride. This concept of self-mastery is echoed in various philosophical and spiritual traditions, emphasizing that personal discipline is fundamental to both individual and societal well-being.

Self-control is the ability to manage one's thoughts, emotions, and actions in pursuit of long-term objectives, often by resisting immediate temptations or distractions. This ability is crucial for a variety of aspects of life, including social interactions, mental health and academic success. Strong self-control is consistently related to better academic performance, healthy interpersonal relationships, and responsible decision-making, based on research.

In educational settings, self-control enables students to focus on their studies, manage their time efficiently, complete assignments, and avoid distractions-all of which support academic success. Classic studies, such as Walter Mischel's "marshmallow test," have demonstrated that the ability to delay gratification is closely associated with future achievement. Additionally, self-control supports emotional regulation, resilience under stress, and the capacity to navigate academic and personal challenges.

While self-control offers many benefits, it is shaped by a combination of cognitive abilities, environmental influences, and genetic factors. Importantly, self-control is not fixed; it can be strengthened through practices such as mindfulness, self-regulation exercises, and consistent effort over time.

Key Factors That Influence Self-Control:

1. **Neurological Development:** The prefrontal cortex, which governs planning and decision-making, is crucial for self-regulation. Its maturation significantly influences a person's ability to exercise self-control.
2. **Genetic and Environmental Factors:** Both inherited traits and life experiences-including parenting, cultural background, and social norms-contribute to self-control.
3. **Strategies for Improvement:** Self-control can be enhanced through various techniques:
    i) ***Mindfulness Practices****:* Practices such as meditation and deep breathing enhance individuals' awareness of their impulses and support better control over emotional reactions
    ii) ***Goal Setting****:* Setting clear, attainable objectives provides direction and motivation, making it easier to resist distractions.
    iii) ***Consistent Habits****:* Establishing regular routines reduces the cognitive load of decision-making, preserving self-control for more demanding tasks.

Overall, self-control is a dynamic skill that plays a pivotal role in personal and academic development and can be cultivated through intentional practice and supportive environments.

FAMILY ENVIRONMENT

To understand the influence of the family environment, it is helpful to consider both the concept of "family" and that of "environment." The environment includes the physical, social, and emotional conditions where a person lives, all of have a vital role in personal development. The

home, where individuals reside with parents, siblings, or other relatives, is not just a physical space-it provides emotional security, meaningful relationships, and a sense of belonging.

A child's cognitive and academic development is strongly shaped by the home environment. Factors such as parental engagement, family income, emotional support, and the general atmosphere at home all contribute to a child's learning and growth. Children who grow up in loving and supportive environments typically do better academically, according to research that has repeatedly demonstrated this. Homes characterized by warmth, encouragement, and strong family connections foster positive personality traits and motivate children to achieve their best. On the other hand, environments lacking in emotional support or characterized by neglect can lead to low self-esteem, feelings of isolation, and poorer academic outcomes.

The family environment also contributes to the formation of children's social skills, particularly their relationships with peers. When parents take an active role and provide a supportive environment, children are more prone to form healthy friendships, it can further increase their academic success. Conversely, difficulties in peer relationships can negatively impact learning, highlighting the importance of a family setup which promotes healthy social engagement (Zhao & Zhao, 2022).

The long-term impact of the family environment is especially evident in adolescents who have experienced early difficulties, such as traumatic brain injury (TBI). Research shows a stable, nurturing home can help children recover and continue to succeed academically, even years after such events. For example, Bignardi et al. (2023) found that parental socio-economic status has a moderate effect on overall cognitive development, with a particularly strong influence on specific skills like vocabulary.

FACTOR AFFECTING FAMILY ENVIRONMENT

A child's academic success, cognitive development, and ability to self-regulate are strongly influenced by their family environment, which is shaped by a range of interconnected factors. These influences can be grouped into three main categories: socioeconomic, psychological, and structural.

Socioeconomic Factors:

Socioeconomic status (SES) is a key determinant of the home environment. Families with greater financial and educational resources are often able to provide better healthcare, educational opportunities, and overall stability. In contrast, children growing up in low-SES households may

experience financial challenges, fewer learning resources, and less parental involvement, which can limit both their academic and cognitive growth (Bignardi et al., 2023). The educational background of parents also plays a significant role; parents with higher education levels tend to place a greater emphasis on learning and are more inclined to encourage children's academic achievement and self-control development.

Psychological and Emotional Factors:

The emotional atmosphere in the household and the parents' mental health are equally significant. Parenting styles and parental mental health directly impact a child's emotional and intellectual growth. High levels of parental stress or mental health difficulties can hinder a child's cognitive and emotional development. Conversely, an authoritative parenting style-which balances warmth and structure-has been associated with better self-regulation and higher academic achievement in children (Conger et al., 2019).

Structural Factors:

Aspects such as family size, birth order, and the overall makeup of the household also participate in shaping educational outcomes. For example, children in larger families may receive less individualized attention and fewer financial resources, potentially affecting their academic progress. The presence of learning materials like books and internet access at home further supports intellectual growth. A well-organized and stimulating environment encourages cognitive development, while a chaotic or resource-poor setting can impede both learning and academic performance (Bradley & Corwyn, 2019).

ACADEMIC ACHIEVEMENT

Academic achievement remains a fundamental topic in educational research, even as perspectives on the broader aims of education vary. The primary mission of educational institutions is to support students' academic development, making academic achievement a central measure of their effectiveness. While other educational objectives are important, academic success is widely viewed as the core responsibility of schools and universities, as these institutions are established to promote comprehensive learning and skill acquisition (Saini, 2010).

In contemporary society, student performance-especially as measured by examinations-plays a vital role in determining future opportunities. Academic achievement is the level of mastery or knowledge a student demonstrates in a particular subject, typically assessed through tests or other formal evaluations. However, a range of factors beyond intelligence or innate ability can influence

academic outcomes. These include a student's interest in the subject, instructional methods, family background, socioeconomic status, and emotional well-being. Even students with strong abilities may encounter difficulties if they face external challenges or psychological barriers, illustrating that academic achievement is shaped by more than just effort or potential.

Each student brings unique qualities to the learning process, and these differences are reflected in academic performance. Variations in test results can be linked to factors such as personal motivation, attitudes, and the specific expertise and competence being assessed. As a result, educational research often focuses on identifying the elements that participate to academic success. Academic achievement is acknowledged as an essential sign of an individual's abilities and social skills, highlighting its importance within educational systems and the learning process.

In education, achievement is typically defined as the successful attainment of knowledge or skills through sustained effort and engagement. Academic achievement determines the degree to which a student has developed proficiency in a particular area of study (Kumar, 2013). This concept encompasses cognitive, emotional, and social growth, serving as a term of a learner's current abilities. Academic success encourages students to set higher goals and provides a clear sense of their progress, while setbacks can impact self-esteem. Therefore, supporting students' academic growth is an ongoing priority for educational institutions, as academic achievement ultimately reflects the depth of learning and expertise gained in specific disciplines.

FACTORS AFFECTING ACADEMIC ACHIEVEMENT

Academic achievement is a multifaceted concept influenced by a wide range of factors. A student's success in school is shaped by a combination of personal characteristics, environmental conditions, and psychological elements (Pannu, 2010).

I. Individual Factors:

These are attributes specific to the student.

i) **Cognitive aspects** include intelligence, the ability to learn, preferred ways of processing information, and creativity.
ii) **Non-cognitive aspects** involve a student's attitude toward education, motivation, goals, study habits, personality, self-confidence, and perspectives about themselves and others.

2. **Environmental Factors:** These influences come from a student's surroundings and circumstances.

Important factors include family income and background, parental attitudes and values, the quality of the educational system, methods of assessment, teacher effectiveness, instructional strategies, the atmosphere at home and school, and the influence of peers (Chhabra, 2012).

3. Psychological Factors: These can be divided into subjective and objective categories, both of which impact how well a student performs.

i) *Subjective factors* relate to the individual and include intelligence, learning capacity, motivation, belief in one's own abilities, preferred learning styles, study routines, creativity, ambition, self-image, and sense of personal control (Kumar, 2010).

REVIEW OF LITERATURE:

Khanam (2006) studied the relationship between secondary school students' academic performance and their familial environment, specifically focusing on gender disparities. The objective of the study was to determine whether pupils from caring and supportive family circumstances do better academically or if students from less ideal environments often perform worse. A representative sample of 200 male and female secondary school students were chosen from different schools to participate in the survey. The results revealed no statistically significant correlation between the nature of the family environment and students' academic achievement. This indicated that whether the family climate was perceived as positive or negative, it did not directly influence the students' academic performance.

Uwaifo (2008) conducted a study to examine the impact of family structure and motherhood on the academic performance of Nigerian university students. The research involved a sample of 300 students from various institutions across Nigeria. The study revealed that students from two-parent families generally performed better academically compared to those from single-parent families. Additionally, significant gender differences were observed in academic performance, with male and female students showing varying levels of achievement based on their family background.

Kaur, Rana, and Kaur (2009) examined the relationship between academic performance, home environment, and self-concept. The findings revealed that the correlation between self-concept and academic achievement was modest and statistically non-significant. The results of the study also found that positive parental traits—particularly care and protection—were strongly associated with a healthy self-concept in adolescents. Teenagers from supportive and nurturing family environments were more likely to develop positive self-concepts, whereas those with low self-

concepts often experienced negative emotional traits such as social isolation and feelings of rejection.

Folorunso et al. (2010) investigated the impact of family background on the academic performance of students in Nigerian higher education institutions, using a sample of 500 students. The study identified several key factors positively influencing academic success, including the student's age, daily reading time, maternal income, and parental education level. Among these, frequent reading habits were most strongly linked to higher academic performance. Parental education, particularly the mother's, showed a significant positive effect on student achievement. While higher parental income also appeared to support academic success, the influence of parental occupation and income was found to be inconsistent and not fully conclusive.

Melhuish (2010) conducted a study on the impact of the home learning environment on child cognitive development. The results of the present study found that measure of home learning environment added to the understanding of the influences that might affect the child's cognitive development.

Woodbury (2011) investigated the level of stress as reported by parents and its relationship to their child's cognitive abilities. The sample of the study consisted of 16 mothers and 16 children. The results of the study revealed negative effects of distractibility, demandingness and mood on long term retrieval processing speed, auditory processing; and fluid intelligence. In addition to this, distractibility and demandingness had both positive and negative influences on the cognitive processes.

Chhabra (2012) conducted a study on the effect of achievement motivation, home environment, and attitudes toward the subject on academic achievement. The study found that the home environment did not have a significant impact on students' performance in Hindi. However, students who possessed a positive attitude toward the subject and demonstrated high levels of achievement motivation showed significantly better academic results. In addition to this, the study revealed a gender difference, with female students consistently outperforming male students in Hindi academic achievement.

Duckworth and Seligman (2013) conducted a study to find the relationship between cognitive ability and self-control. The results of the study revealed that self-control, often more so than IQ, plays a vital role in behavioural management and academic success. The study concluded that self-control is a better predictor of goal-oriented behaviour and long-term success. Students with higher

self-control were better able to manage distractions and delay gratification, which enhanced their cognitive abilities over time.

Sajjadi et. al (2015) examined the relationship between academic achievement and metacognitive skills in high school students from Bandar Abbas. A stratified sampling method was employed to select 380 students, and correlation analysis was conducted on the data. The findings revealed a moderate correlation between academic success and metacognitive skills, suggesting that students who exhibit higher levels of metacognition tend to perform better academically.

Gehlawat (2016) studied the self-concept and family environment in relation to scholastic achievement of senior secondary school students. For realising the objectives of the study, normative survey method was employed. Findings of the study reported that there existed no significant difference in the family environment and scholastic achievement with respect to their gender. The results revealed a strong positive relationship between self-concept and scholastic achievement, as well as between family environment and scholastic achievement among male students. For female students, self-concept was found to be moderately associated with their family environment. Additionally, a highly significant positive relationship was observed between self-concept and scholastic achievement, as well as between family environment and scholastic achievement among female students.

Garima (2016) explored the influence of learning and thinking styles on the academic performance of senior secondary school students. A random sample of 100 students from senior secondary schools in Abohar Tehsil was selected for the study. The Learning and Thinking Style Test developed by Dr. D. Venkata Raman was used, and the data was analyzed using the t-test. The results indicated that learning and thinking styles did not have a significant impact on the academic performance of the students.

Gill (2017) explored the relationship between academic achievement and psychological and environmental factors, specifically anxiety, learning styles, and the school environment, among senior secondary school students in Faridabad, India. The study involved 264 students from both government and private schools, using standardized tools to assess anxiety levels, learning styles, and various aspects of the school environment. The findings showed a negative but statistically insignificant correlation between academic achievement and anxiety. Similarly, learning styles, including enactive, figural, and verbal types, were not significantly linked to academic achievement. However, certain aspects of the school environment, such as cognitive

encouragement and structured control, were found to have a significant positive impact on student performance.

Sidola and Dhanda (2018) attempted to study the influence of the home environment on the cognitive development of children in Haryana and Uttarakhand, India. The findings of the study indicated that parental education, particularly maternal education, played a significant role in shaping children's cognitive abilities. Children from families with higher levels of parental education performed better, as they were exposed to more intellectually stimulating environments and richer learning opportunities. The study also highlighted the impact of socioeconomic factors such as parental income and occupation on cognitive development

Strobel et al. (2019) conducted a study on relationship between cognitive ability, self-control, and academic performance, with a focus on the role of the need for cognition—the intrinsic desire to engage in complex thinking. The results of the study revealed that students with higher cognitive abilities generally performed better academically, but self-control and motivation were critical for maximizing their potential. The results of the study revealed that students with a strong desire to engage in thinking were more inclined to use deep learning techniques, remain committed to difficult coursework, and show resilience in their academic pursuits. It also showed that even those with average cognitive skills could achieve academic success if they were highly motivated. In contrast, students who had high cognitive abilities but lacked self-discipline often performed poorly because of procrastination and inconsistent effort.

Peng and Kievit (2020) studied the relationship between academic success and cognitive abilities. The findings of the study revealed that cognitive abilities such as working memory, logic, and executive function were not only enhanced by academic learning but also predicted academic performance.

Shi and Qu (2021) conducted a study on the impact of cognitive abilities and self-control on academic performance among high school students in Beijing. The study focused on five primary cognitive abilities: memory, information processing speed, representation, logical reasoning, and thinking transformation. The results of the study showed that all these cognitive abilities had a significant positive effect on academic performance. Students who exhibited strong self-control were more capable of applying their cognitive abilities effectively, which resulted in better academic performance. On the other hand, those with weaker self-control struggled to convert their cognitive strengths into academic achievement.

Wang et al. (2022) conducted a study on impact of family environment on academic performance of adolescents from the China Education Panel Study, which included 9,449 eighth-graders. The results of the study revealed that both positive peer relationships and a supportive family environment were strong predictors of academic success. Peer quality accounted for 27.5% of the effect and partially mediated the relationship between academic achievement and family environment. The study also revealed differences in self-expectations among teenagers and their parents' educational expectations could moderate these relationships, highlighting the complex interactions between peer and family influences.

Seema, Lalita, and Mann (2023) examined the relationship between family environment, psychological well-being, and academic achievement. 300 teenagers, aged 15 to 18 were selected as sample. The results of the study found significant gender differences in psychological well-being, family dynamics, and academic success. The study highlighted that a positive family environment strongly influenced students' psychological well-being, which in turn contributed to better academic performance. In particular, academic success was linked to family cohesion, expressiveness, and intellectual-cultural orientation, while poor performance was associated with family conflict and disengaged parenting.

Guo (2024) attempted a study to explore the influence of the family environment on the development of self-control and, consequently, academic success. The study revealed a significant positive relationship between self-control and academic success. Notably, this effect is stronger for students from supportive family environments and weaker for those from less nurturing backgrounds. The results also concluded that family background plays a key role in moderating this relationship, suggesting that self-control had a greater impact on academic performance in a loving family setting.

Padir (2025) studied the family environment, social anxiety, and emotional intelligence among secondary school students. The objective of this study was to examine the relationship between family environment, social anxiety disorder, and emotional intelligence. The results of the study revealed significant findings. Students from positive family environments showed lower levels of social anxiety disorder. They experienced greater confidence in social situations due to the love, communication, and support they received from their families. Similarly, students from positive family environments demonstrated higher emotional intelligence. They were better at expressing their emotions, understanding others' feelings, and adapting to social situations. Conversely, students with social anxiety disorder displayed lower emotional intelligence. The study clearly

indicated an interrelationship between family environment, social anxiety disorder, and emotional intelligence.

SIGNIFICANCE OF STUDY

Students in senior secondary schools encounter many social, psychological, and academic obstacles as they grow cognitively. At this point, a student's academic success and general growth are greatly influenced by their cognitive abilities, self-control, and family environment. Understanding how these three aspects interact and impact a student's conduct and success has become crucial in today's social and educational environment. As of yet, no detailed and comprehensive study has been carried out that examines at senior secondary students' cognitive abilities in connection to their academic performance, family environment, and self-control all at once. The majority of current research examines these variables independently or concentrates on distinct age groups. Consequently, this research gap must be filled.

Teachers, parents, counsellors, and regulators will gain important insights from this study that will help them implement better teaching practices, support mental health, and promote family involvement. Teachers can adapt their teaching strategies to promote both intellectual and emotional development by having a better understanding of the relationship between cognitive talents, self-control, and the family environment. Parents will have a better understanding of how their home environment affects their child's wellbeing and academic performance. Counsellors are able to recognize students who struggle with self-control or family stress and provide the right kind of support. Emotional intelligence and family interaction can be included into curriculum and policies by policymakers. The relationship between academic success and emotional-social elements will be strengthened by this research. It will assist in establishing nurturing settings where pupils can acquire vital life skills. The results of the study will support improved coping strategies, motivation, and resilience. Students will ultimately be better equipped to handle obstacles in both their academic and personal lives. This kind of all-encompassing growth is essential to their success in college and beyond.

Understanding the relationship between cognitive abilities and academic achievement can help educators in identifying students’ strengths and weaknesses more accurately. The findings of this study may guide curriculum planners and teachers in developing instructional strategies that enhance cognitive engagement and learning outcomes. The senior secondary stage marks a critical period in a student’s academic and psychological development. During this time, cognitive abilities such as reasoning, memory, problem-solving, and attention become central to academic success and future career planning.

The results of the study may be useful for educational policymakers in designing more holistic student development programs. Recognizing the influence of self-control and family background on cognitive and academic success can promote the integration of life skills training and family outreach programs into school curricula. In addition to this, the results of the present study may also prove to helpful for the teachers, parents, curriculum framers and educational administrators in understanding the relative importance of home and school environment in developing cognitive skills among the students and thus, necessary steps can be initiated by them in bringing required modifications in overall family and school environment, pedagogy, curriculum and its transaction processes.

Keeping in view the above points, the investigator has decided to investigate the present study.

STATEMENT OF THE PROBLEM

"Cognitive Abilities of Senior Secondary School Students in Relation to Self-Control, Family Environment and Academic Achievement "

OBJECTIVES OF THE STUDY:

1. To study the level of cognitive abilities, self-control, family environment and academic achievement among senior secondary school students.
2. To study the difference in cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary students with respect to:
    i) Gender
    ii) Academic Stream
    iii) Self-Control
3. To study the interactional effect of:
    i) Gender and Academic Stream
    ii) Gender and Self-Control
    iii) Academic Stream and Self-Control
    iv) Gender, Academic Stream and Self-Control

    with regard to cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students.

4. To study the difference in cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students with respect to:
    i) Gender

ii) Academic Stream

iii) Family Environment

5. To study the interactional effect of:
    i) Gender and Academic Stream
    ii) Gender and Family Environment
    iii) Academic Stream and Family Environment
    iv) Gender, Academic stream and Family Environment

    with regard to cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students.

6. To study the difference in cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary students with respect to:
    i) Gender
    ii) Academic Stream
    iii) Academic achievement

7. To Study the interactional effect of:
    i) Gender and Academic Stream
    ii) Gender and Academic Achievement
    iii) Academic Stream and Academic achievement
    iv) Gender, Academic Stream, Academic Achievement
        with regard to cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students.
8. To study the correlation between self-control and cognitive abilities among senior secondary school students.
9. To study the correlation between family environment and cognitive abilities among senior secondary school students.
10. To study the correlation between academic achievement and overall cognitive abilities among senior secondary school students.

HYPOTHESES OF THE STUDY:

1. There exists no significant difference in cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary students with respect to:
    i) Gender

ii) Academic Stream

iii) Self-Control

2. There exists no significant interactional effect of:
    i) Gender and Academic Stream
    ii) Gender and Self-Control
    iii) Academic Stream and Self-Control
    iv) Gender, Academic Stream and Self-Control

    with regard to cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students.

3. There exists no significant difference in cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students with respect to:
    i) Gender
    ii) Academic Stream
    iii) Family Environment
4. There exists no significant interactional effect of:
    i) Gender and Academic Stream
    ii) Gender and Family Environment
    iii) Academic Stream and Family Environment
    iv) Gender, Academic stream and Family Environment
        with regard to cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students.
5. There exists no significant difference in cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary students with respect to:
    i) Gender
    ii) Academic Stream
    iii) Academic achievement
6. There exists no significant interactional effect of:
    i) Gender and Academic Stream
    ii) Gender and Academic Achievement
    iii) Academic Stream and Academic achievement
    iv) Gender, Academic Stream, Academic Achievement
        with regard to cognitive abilities (dimension-wise and overall cognitive abilities) of senior secondary school students.

7. There exists no significant correlation between self-control and cognitive abilities among senior secondary school students.
8. There exists no significant correlation between family environment and cognitive abilities among senior secondary school students.
9. There exists no significant correlation between academic achievement and cognitive abilities among senior secondary school students.

DELIMITATIONS OF THE STUDY:

The present research will be delimited to senior secondary school students studying in class 11th of govt. senior secondary schools affiliated to Himachal Pradesh Board of School Education Dharamshala.

1. The study will be confined to four districts (Mandi, Shimla, Solan, Bilaspur) of H.P.
2. Further, the present study will be confined to one dependent variable i.e. Cognitive Abilities and five independent variables namely, Gender, Academic Stream, Self-Control, Family Environment and Academic Achievement.

OPERATIONAL DEFINITION OF THE KEY TERMS:

Cognitive Abilities: Cognitive abilities are skills your brain uses to complete essential day-to-day tasks like thinking, learning, reading, remembering, speaking, listening and paying attention. Cognitive abilities occur naturally in the brain. Cognitive abilities are the brain-based skills we need to carry out any task from simplest to the most complex.

Self- Control: Self-control is the ability to regulate one's emotions, thoughts, and behaviors in the face of temptations and impulses. often referred to as willpower. It involves exercising restraint and moderation in various aspects of life, leading to better decision-making and outcomes. Self-control is the war between impulsivity and doing what's right or beneficial. It's the ability to control emotions, impulses or behaviors to achieve a greater goal.

Family Environment: The Family Environment is a system of relationship existing between Parents and children. it is a dynamic set of relationships among all the people who live in the “family.” The Children’s behavior, ideas, thoughts, and fantasies affect the lives of those with whom they live. The behavior, ideas, thoughts and fantasies of father and mother affect the lives of their children. This group has resources that are used to adjust in life.

Academic Achievement: Academic achievement refers to a student's progress in acquiring educational skills, knowledge, and understanding, typically measured through assessments like

grades, test scores, and completion of coursework. In the present study, academic achievement refers to the pass percentage of matriculation examination of senior secondary school students.

Gender: Gender is having two types i.e. Male and Female

Academic Stream: Academic Stream is having two types i.e. Arts and Science Stream.

RESEARCH METHODOLOGY:

In the present investigation, Survey method under descriptive research method will be followed.

SAMPLING

Sampling refers to the process of selecting few representatives from the whole group of items in any field of inquiry. The whole group is referred to as 'population 'or 'universe'.

For the realization of objectives of the present study, multistage sampling technique will be applied. In the first stage, out of 12 districts of H.P., four districts will be selected by applying convenient sampling. In the second stage, a list of educational blocks of the selected district will be prepared and educational block will be selected by applying random sampling technique. In the 3rd stage, a list of senior secondary schools in each sampled educational block will be prepared and the selection of senior secondary schools will be done by applying convenient sampling technique. At the last stage, the selection of senior secondary school students will be made by applying incidental sampling technique. The researcher will try to include 1000 Senior Secondary School Students of class 11^{th}.

VARIABLES OF THE STUDY

Independent Variables:

i) Gender
ii) Academic Stream
iii) Self-Control
iv) Family Environment
v) Academic Achievement

Dependent Variable:

i) Cognitive Abilities

RESEARCH TOOLS TO BE USED:

i) Cognitive Ability test by Madhu Gupta and Bindiya Lakhani (2018).
ii) Self- Control scale will be developed by the researcher herself.
iii) Family environment scale by Shalu Saini and Parminder Kaur (2017).
iv) Academic achievement will be measured on the basis of marks obtained in class 10^{th}.

STATISTICAL ANALYSIS:

To fulfil the objectives of the study, various statistical methods will be employed. Initially, descriptive statistics such as mean, median, mode, standard deviation, skewness, and kurtosis will be calculated to check the normality of the data for each variable. To study the main and interactional effects of gender, academic stream, self -control, family environment and academic achievement on cognitive abilities of senior secondary school students, the statistical techniques of ANOVA will be applied. To study the correlation between cognitive abilities, self -control, family environment, and academic achievement, product-moment correlation will be applied.

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